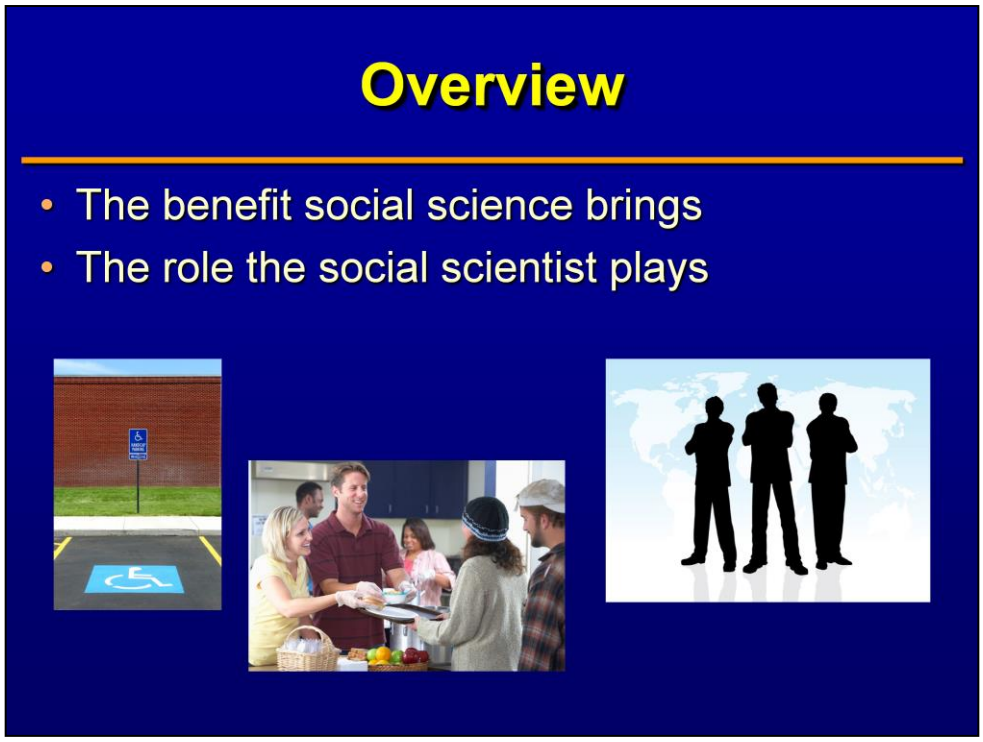

Social Science Aspects of Post Mortems
Advanced Warning Operations Course
IC Core 4
Warning Decision Training Branch

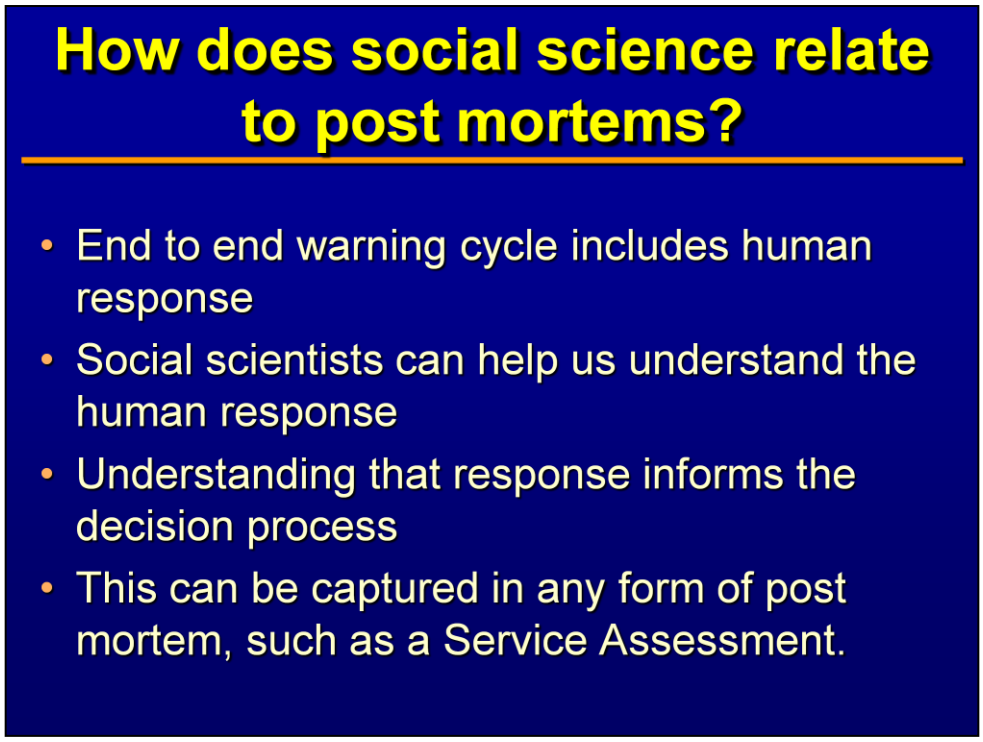


Post mortems offer an opportunity for agency growth and creativity. Many of the social science disciplines can bring a fresh and useful perspective to the review and analysis of event management, partner interaction, agency policy and procedures, and the warning process.

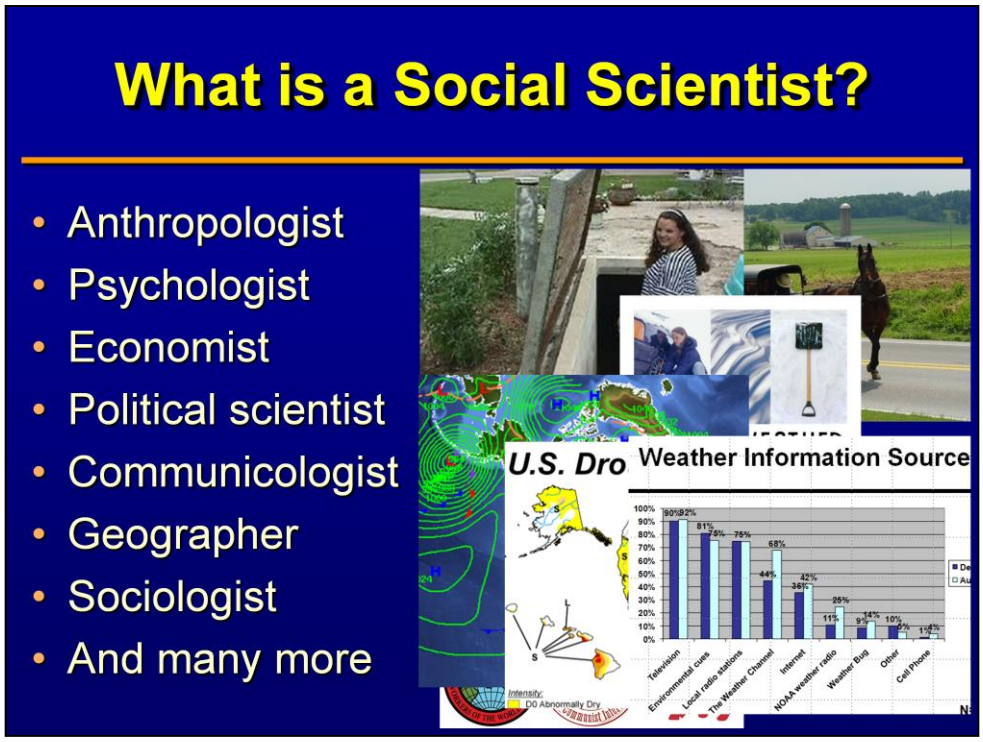
Learning Objectives

1. Identify examples of social science disciplines and their applications in post mortems
2. Identify relevant social science questions to be addressed in post mortems
3. Identify ways that social scientists gather information

Here are the learning objectives for this module.



If we are to look at the end-to-end warning cycle, it must include the human response. This is the strength that the social scientist brings to the table. Understanding the human response, can inform the entire decision-making process. By bringing social science into the service assessment (a form of a post mortem) process, we can incorporate most facets of the end-to-end warning cycle.



Social science is an umbrella term that refers to many disciplines that study human behavior and interactions. Here are a few examples. "An Anthropologtist might study how the cultural rules of the Amish affect how they receive and interpret weather warnings.

A psychologist might look at which personality traits dominate in people who are inclined to take weather related precautionary action.

An Economist can see if there is a relationship between people who are risk adverse about insurance and those who are risk adverse about winter weather hazards.

A Political Scientist could assess if there is party affiliation can be used to motivate weather preparedness among community groups.

A Communicologist might look at how NWS web products are likely to encourage repeat use by a non-technical user.

A Geographer would help us understand how are people impacted during long duration severe heat events.

And a Sociologist may study how people in a community receive their weather warnings.

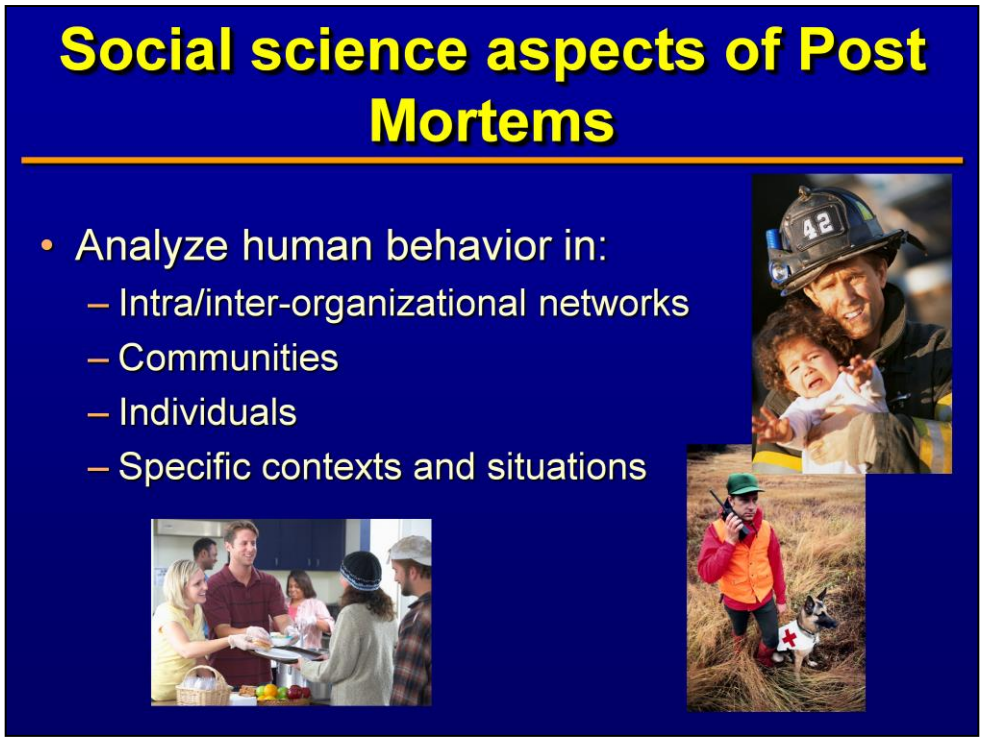
All of these perspectives are valuable when understanding the entire

communication process.

What do these have in common?

- The study of the ordinary and extraordinary human interactions and transactions
- The study of the human social world
- Study of individual and collective actions

Social scientists ask and answer questions about human experience in a systematic manner. By doing this, they attempt to build both knowledge and create understanding about how human behavior can be influenced and marshaled for the greater and individual good. Social scientists may study individual, organization, or community behavior. No matter what the focus, the intent of the social scientist is to study human action/behavior either at the individual or collective levels. Both the individual and collective levels of analysis are important in a post mortem. Social scientists can help explain how individuals may behave and they can explain how organizations operate, such as how well the weather enterprise operates during a severe weather event or how well processes function, such as how well people receive warnings in the severe weather warning process.



One less obvious aspect of applying social science to the process of conducting post mortems is that the “intra-organizational” analysis can be directed at NOAA/NWS policies and practices.

At the community level, the post mortem can look at how the event was handled by the entire weather enterprise and how the public reacted and responded. In some sense, this may be better than focusing only on individual behavior in severe weather events because individual behavior may not be indicative of how well the weather enterprise and the community responded. For example, in the April 27th 2011 tornado events in MS, AL, and GA the weather enterprise questioned how well they did when there were so many fatalities. By studying only individual behavior, one might assume that there were problems in getting the weather warnings to people, but also by studying the weather enterprise, it was clear that the weather enterprise had operated very well and that some people either just ignored weather warnings or some people could not take action, even when they got the warnings.

Emergency response goal

Prevent, protect against, quickly respond to, and recover from "weather" emergencies, particularly those in which scale, timing, or unpredictability threatens to overwhelm routine capabilities.

How does society address this goal?

And what role might NOAA/NWS play in this? Not only immediately before, during and after a major weather event, but in the other "down times"?

This overall Emergency Response Goal can be assessed by the inclusion of the social science approaches in the post mortems. The social science approaches must collaborate with the approaches of the meteorologists in the post mortem to address this goal as this is the same goal they are assessing in the post mortem.

Emergency Response Actions

- Processes and Practices
  - Monitoring and investigating
  - Communicating critical information
  - Developing, practicing, improving response
  - Articulating skills, attitudes and capabilities needed for weather enterprise roles
  - Educating communities

These are some of the major processes and practices to be assessed through the post mortem.

It's important to assess how we monitor and investigate in real time as well as how we communicate critical information. We need to develop, practice and improve our response and look at the skills, attitudes, and capabilities that the weather enterprise needs. Finally, we need to look at how we educate the communities.

Emergency Response Actions …cont

- Infrastructure and Material Resources
  - Building and operating labs/centers/offices
  - Operating and maintaining assets
  - Developing communication technologies

These are some additional aspects that can be assessed in the post mortem.

What are the infrastructures and resources we need in emergency response? That might mean the labs, centers and offices we use. It also means we look at how we operate and maintain our assets. Are the technologies we use for communication appropriate?

Role of Social Science in Post Mortems/Service Assessments

- Examine human behavior (individual and in orgs) as it relates to:
  - Prevention
  - Mitigation
  - Preparedness
- Help public take action
- Prepare responders to react
- Assist development of community resilience
- Identify gaps and opportunities in partner relationships

How do individuals, organizations, and communities prepare for severe weather events? What was the baseline before the event being assessed in the post mortem? Some communities may be more or less resilient, have mitigated or failed to mitigate again potential severe weather outcomes, and may be well or ill-prepared for these events. As part of the PM, the social scientists can assess that baseline and determine how well things functioned to report on how resilient the impacted areas were during the event. The results can help to educate the public on how to take better action in the future, direct first responders in their response activities in future events, and help make communities more resilient for future events. It will also help to identify the partner relationships that existed in the weather enterprise at the time of the event and how well those partnerships worked. It will also reveal weak partnerships, strong partnerships, and the need to add additional partners in future events. The analysis will also provide information for future planning for prevention, mitigation, and preparedness.

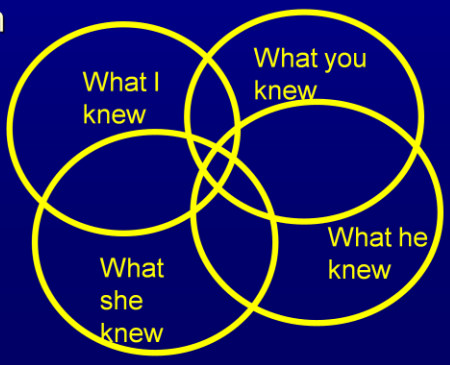
Social scientists could ask these questions

- How well is warning process working?
- Are warnings received?
- Do people know what to do?
- Can they protect themselves?
- Do partners have the best use of NWS/NOAA products and expertise?

These are some of the questions that could be asked by the social scientist on the team. The questions should be derived from the mission of the post mortem and then the meteorologists and the social scientists should work together to determine which questions are relevant to the mission. The Post Mortem will be time limited so the development of the questions is essential to make sure that the right questions are posed and assessed as part of the PM. Other questions can be asked/assessed if there is time, but it is critical to focus on a set number of questions.

Venue for investigation
Small scale

- Routine Local Self-Evaluation
  - Critiques of processes and procedures
  - Small scale; done often



A local office can choose to do a local assessment any time. These can be done more often and can look more closely at processes and procedures via a self-evaluation on a routine basis.

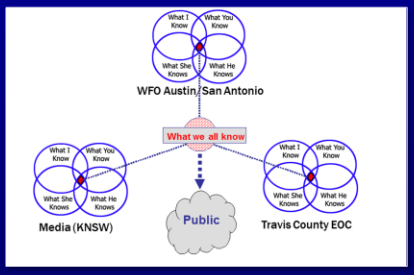
Venue for investigation
Larger scale

- Service Assessments are one avenue
  - Can be very thorough
  - Access to participants
  - However, few and far between
    - Thus a small sample size

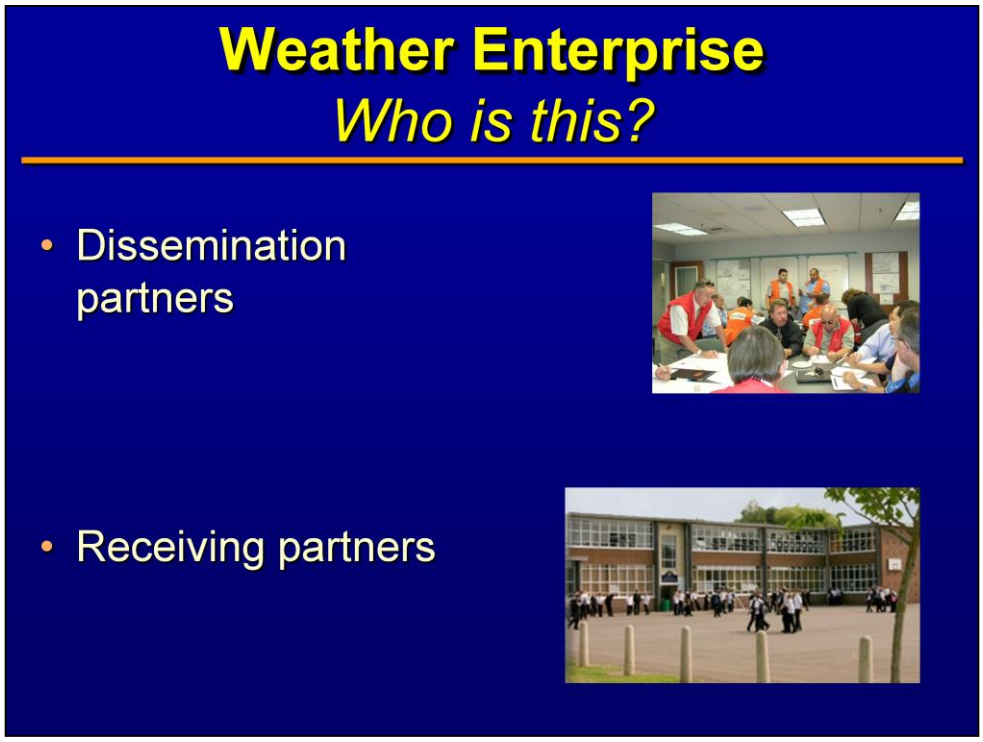
Service assessments can be one avenue to investigate an event. They can be thorough and involve lots of participants. Unfortunately because of this, they don't happen very often. Thus there is a small data set generated (when compared to the actual number of events).

Venue for Investigation
Service Assessments

- Model and analyze the human behavioral aspects of
  - The weather enterprise
  - The community
  - The individual
  - The NWS/NOAA
  - Cross agency coordination



A service assessment affords the opportunity to take a much larger look at and consideration of all of the players in an event. It can take into account the many aspects of human behavior on several scales. This includes the weather enterprise, the community, the individual, NOAA and NWS, and the coordination that occurs across agencies. We'll look at these and how they might be assessed in a service assessment.



What do we mean by The Weather Enterprise?

The weather enterprise includes all of the partners in the dissemination of weather education, knowledge, forecasts, and warnings, as well as response and recovery from those events. In this case the public is a partner, not a passive receiver. The concept of Weather Ready Nation expands this. The National Weather Service, emergency management, and broadcast meteorologists are the primary partners but they form a network with all of the partners who assist in this process as well as receive and use the information. Partners include all first responders, schools, government, businesses, social service organizations, utilities, as well as all publics who consume this information.

The *weather enterprise* should

- Monitor and investigate weather hazards
- Nurture stronger Partner Communication
- Operate systems to identify threats
- Test emergency response plans
- Work with partners to:
  - Identify weather-related needs
  - Identify better uses of weather info
  - Strengthen relationships

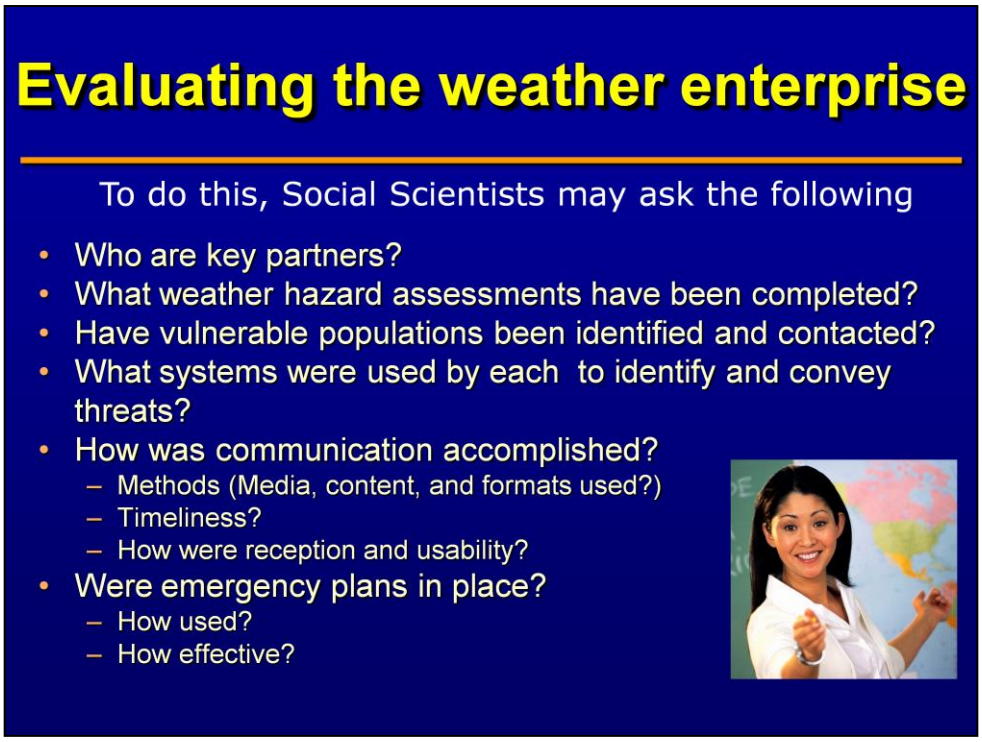
With a partnership in mind, the weather enterprise should monitor and investigate weather hazards. Each should have a stake in establishing stronger partner communication.

They should work to identify threats and test the response to those threats. Together they can better:

Identify weather-related needs

Identify better uses of weather info

Strengthen relationships



To evaluate the effectiveness of the weather enterprise, the social scientist may ask the follow questions:

Who are key partners?

What weather hazard assessments have been completed?

Have vulnerable populations been identified and contacted?

How was communication with partners accomplished?

What systems were used by each to identify and convey threats?

- How was communication accomplished?
  - Methods (What media, content, and formats were used?)
  - Timeliness?
  - How were reception and usability?
- Were emergency plans in place?
  - How were they used?
  - How effective were they?

What is a community?

It is a system of networks, one of which is the weather enterprise network. All networks in a community operate to connect people and needs as well as to serve as a communication system. It is the planning of all of these networks that make a community more resilient to severe weather events. Any gaps in these partnerships between networks and any communication breakdowns can be a reason for lack of resilience. The PM should assess/evaluate how well these community networks partner with the weather enterprise network and the level of inclusion of relevant partners. Severe weather event planning should be taking place and exercising of these plans should be in place prior to severe weather events. A lack of preplanning and exercising may mean that a community is not prepared to respond properly to severe weather warnings. Here is an example: in the 2012 Derecho storm event, the Kentucky Motor Speedway was in the path of the Derecho. The weather enterprise was connected to the Speedway for emergency planning purposes so that the Speedway could be informed of any severe weather events that might impact their large population venue. They received a direct call from the NWS of the warning and were able to evacuate their field in advance of the impact. Had they not been partnered with the NWS and other planning partners, they might have

received the warning too late to have enough time to evacuate and if they had not planned for such a situation, they might not have had the procedures and protocol to conduct that evacuation effectively.

Evaluate by asking these questions

- Were there networks to disseminate info?
- What networks are in the area?
- What IWTs are working with NWS
  - Who is missing??
- What Community plans are in place?
- Was there participation in drills?
- What are the resilience indicators?
- What resources are available? Which are not?

These are examples of questions that can be used to assess community network and partnership functioning.

The *Individual's role*

- Education
- Mitigation
- Prevention
- Resilience
- Understanding warnings
- Personal maintenance
- Serve as node

Ultimately, it comes down to how well the individual acts in the severe weather event. The social sciences can be used to assess how well the public was educated about severe weather response prior to the event, whether vulnerable populations were unable to mitigate or prevent impact from severe weather, whether the public understood the warnings, and how well prepared people are when they can get the warnings and can take action. Some people are more weather aware and more prepared. Others are less aware and less prepared. Good public education can change this. Asking the public how well they were warned of the weather and what kind of preparedness plans they have is critical. It is also important to know if people in a community are critical nodes of communication that help disseminate weather warnings. For instance, do church leaders, community leaders, neighborhood leaders, school leaders pass warnings on to their communities to speed the process and to add authority to the warnings?

Evaluating the Individual by asking…

- Can public identify education they've received?
- Did they have safe plans?
  - Did they use them?
- Were there mitigation efforts?
  - Seasonal or short term?
- Did they receive warning?
  - Understand?
- Were they prepared?
- Did they take action?
  - Did the action work?
- What would they do next time?
  - Differently?
  - The same?

In order to evaluate the community, the social scientist may pursue answers to the following questions.

Can public identify education they've received?

Did they have safe plans?

Did they use them?

Were there mitigation efforts?

Seasonal or short term?

Did they receive warning?

Understand?

Were they prepared?

Did they take action?

Did the action work?

What would they do next time?

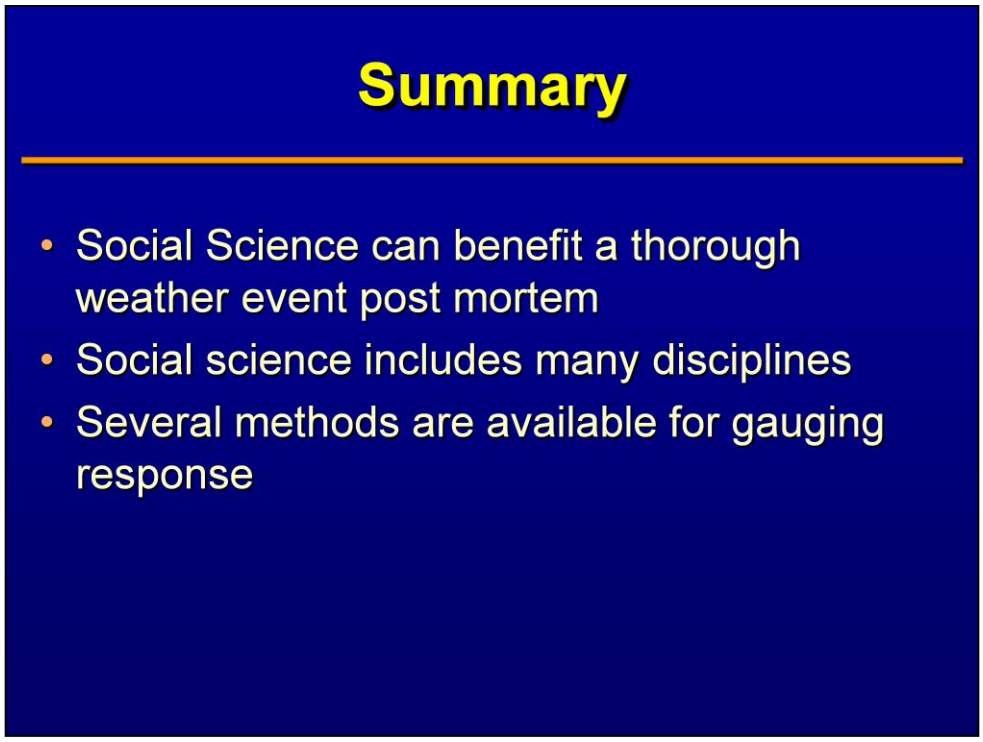
Differently?

The same?

Social Science Approaches to data gathering

- Surveys
- Interviews
- Observations
- Focus groups
- Analysis of existing data
- Content analysis
- Document analysis
- Visual analysis

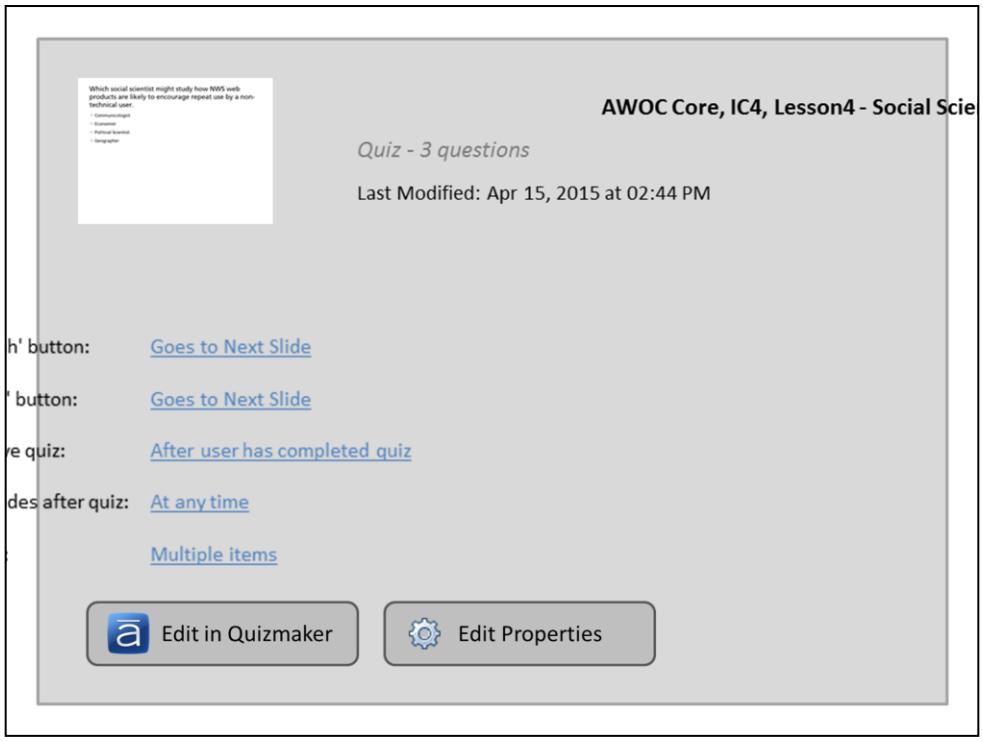
These are some of the approaches that the social scientists can use in the post mortem or service assessment in order to gather data and answer the questions posed elsewhere in this module. The approach used will depend on the questions to be asked and the nature of the population to be studied. Each of these approaches have limitations and the social scientists can provide their knowledge on which approach will work best for the particular PM.



A thorough look at any weather event and the response associated with it can benefit from the presence of a social scientist.

Social science is a broad term which includes many disciplines that take into account human behavior.

Social scientists have several methods for gauging the response of groups and individuals in significant events.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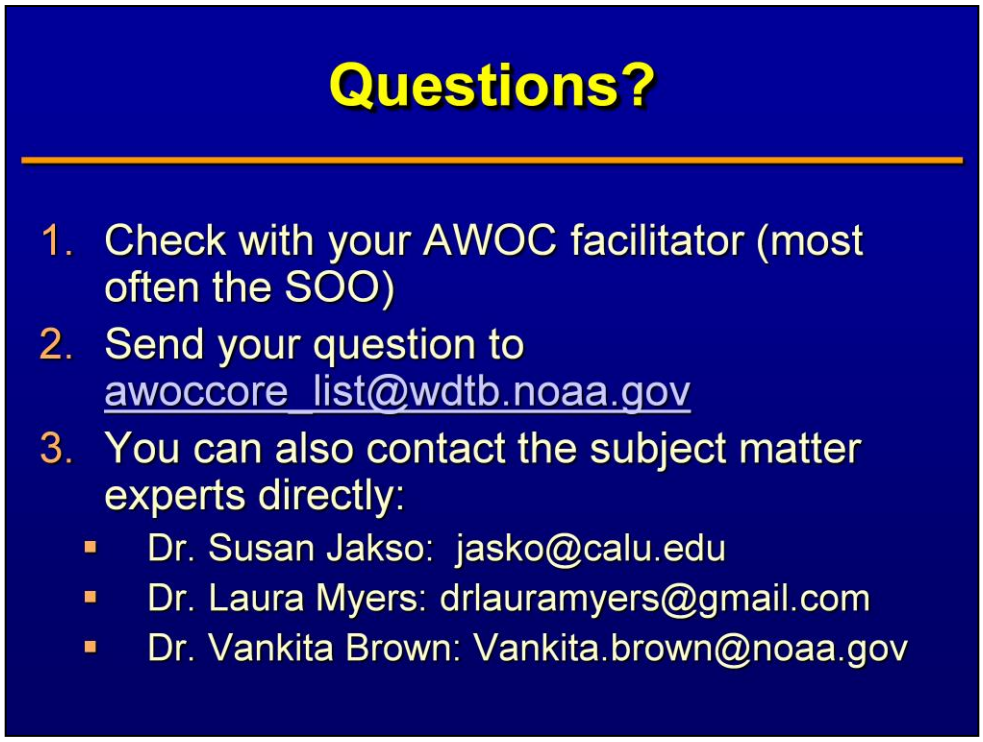

If you have questions about this material, first check with your AWOC facilitator (most likely your SOO). If your AWOC facilitator cannot answer your question, please send an email to awoccore_list@wdtb.noaa.gov.

You may also choose to contact the social scientists who developed this material

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